APPENDIX C

1 (Currently Amended). A method for~~of~~ image compression[[,]] comprising the steps of:

recursively transforming an image using Discrete Wavelet Transform to create a plurality of levels including at least a first level, multiple intermediate~~n~~ levels, and a low-low pass subband level~~of level n, wherein n is the number of levels~~;

quantizing the transformed image at each level; and

datapacking the quantized image by:~~, wherein the datapacking step further comprises:~~

encoding ~~of~~ the first level using adaptive run length coding of zero coefficients;

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encoding at least one of the multiple intermediate~~n~~ levels using run-length coding of zero coefficients and a predetermined two-knob H~~h~~uffman table for non-zero coefficients; and

encoding ~~of~~ the low-low pass subband level~~of level n~~ using a low frequency packing algorithm.

2 (Currently Amended). The method of claim 1, wherein the step of encoding ~~of~~ the first level further comprises the steps of:

scanning the quantized image to find a largest coefficient magnitude;

storing the largest non-zero coefficient magnitude in a header;

run-length coding ~~of~~ the zero coefficients in the quantized image; and

encoding the non-zero coefficients using a predetermined H~~h~~uffman table.

3 (Currently Amended). The method of claim 2, wherein the step of encoding ~~of~~ the first level further comprises the steps of:

if a non-zero coefficient is not found in the predetermined H~~h~~uffman table, encoding an escape code and encoding the non-zero coefficient in a signed bit representation.

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4 (Currently Amended). The method of claim 3, wherein the step of encoding ~~of~~ the first level further comprises the steps of:

encoding a run in the quantized image by using three bits; and

if three bits are insufficient~~not enough~~ to write the run, encoding a zero codeword.

5 (Currently Amended). The method of claim 1, wherein the step of encoding at least one of the multiple intermediate~~n~~ levels[[,]] further comprises the steps of:

scanning the quantized image after run-length coding of the

zero coefficients to find the longest run; and

storing the longest run.

6 (Currently Amended). The method of claim 5, wherein the step of encoding at least one of the multiple intermediate~~s~~ levels[[,]] further comprises the step of:

determining a long run or a short run based on the magnitude of the longest run.

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7 (Currently Amended). The method of claim 1, wherein the step of encoding the low-low pass subband level using the low frequency algorithm includes~~in low frequency algorithm further comprises~~ the step of:

calculating a difference between a plurality of DC coefficients and a plurality of AC coefficients, thereby defining a plurality of DC difference values.

8 (Currently Amended). The method of claim 7, ~~wherein in low frequency algorithm~~ further comprising~~es~~ the step[[s]] of:

writing the DC coefficients and the DC difference values to an encoded data stream in unsigned bit representation in a row-wise manner.

9 (Currently Amended). A method for~~of~~ image compression[[,]]

comprising the steps of:

recursively transforming an image using Discrete Wavelet Transform to create a plurality of levels;

quantizing the transformed image at each level; and

encoding ~~of~~ the quantized image at each level using run-length coding of a plurality of zero coefficients and a predetermined two-knob H~~h~~uffman table for a plurality of non-zero coefficients.

10 (Currently Amended). An encoder for~~of~~ compressing image data[[,]] comprising:

a two-dimensional discrete wavelet filter for transforming the image~~input~~ data into a plurality of coefficients forming a first level, multiple intermediate levels, and a low-low pass subband level~~of a highest level~~;

a quantizer for mapping the coefficients into discrete regions by a predetermined compression parameter; and

a datapacker for compressing the mapped coefficients wherein the datapacker encodes a plurality of zero coefficients at the first level by adaptive run length coding, encodes a plurality of non-zero coefficients at one or more of the intermediate levels by a two-knob Huffman coding, and encodes the low-low pass subband level~~at the highest level~~ by low frequency coding.

11 (Currently Amended). The encoder of claim 10, wherein the datapacker is adapted to:~~at the first level the adaptive run length coding further comprises~~

scan~~ning~~ the mapped coefficients of the first level to find a largest coefficient magnitude[[,]];

store~~ing~~ the largest non-zero coefficient magnitude in a header[[,]]; and

run-length code~~ing of~~ the zero coefficients.

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12 (Currently Amended). The encoder of claim 11, wherein the datapacker ~~at the first level~~ encodes the non-zero coefficients of the first level using a predetermined H~~h~~uffman table after run length coding of the zero coefficients.

13 (Currently Amended). The encoder of claim 12, wherein the datapacker ~~at the first level~~ encodes a run of zero coefficients of the first level by writing a zero indicator followed by a predetermined number of data elements[[,]].

14 (Currently Amended). The encoder of claim 13, wherein the datapacker ~~at the first level~~ encodes an additional zero indicator at the first level if the predetermined number of data elements are insufficient~~not enough~~ to write the run.

15 (Currently Amended). The encoder of claim 10, wherein the datapacker ~~at the low-low subband at the highest level~~ encodes a difference between a plurality of DC coefficients and a plurality of AC coefficients at the low-low pass subband level.

16 (Currently Amended). A computer readable medium having a program for performing image compression, the program being adapted to~~, comprising the steps of~~:

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recursively transform~~ing~~ an image using Discrete Wavelet Transform to create a plurality of levels including at least a first level, multiple intermediate~~n~~ levels, and a low-low pass subband level~~of level n, wherein n is the number of levels~~;

quantizing the transformed image at each level; and

datapacking the quantized image by~~, wherein the datapacking step further comprises~~:

encoding ~~of~~ the first level using adaptive run length coding of zero coefficients;

encoding at least one of the multiple intermediate~~n~~ levels using run-length coding of zero coefficients and a predetermined two-knob H~~h~~uffman table for non-zero coefficients; and

encoding ~~of~~ the low-low pass subband level~~of level n~~ using a low frequency packing algorithm.

17 (Currently Amended). A method for~~of~~ compressing a digital image data set[[,]] comprising the steps of:

performing a plurality of two-dimension discrete wavelet transformations on the data set, wherein the plurality of transformations includes a first level, a plurality of intermediate levels, and a low-low pass~~last low-pass~~ subband level~~of a last level~~;

quantizing the plurality of transformations;

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datapacking the quantized first level using a first packing algorithm;

datapacking at least one of the plurality of quantized intermediate levels using a second packing algorithm; and

datapacking the low-low pass subband level~~low pass subband of the last level~~ using a third packing algorithm.

18 (Currently Amended). The method of claim 17, wherein the first packing algorithm includes~~the step of~~:

adaptive run-length coding of a plurality of zero coefficients.

19 (Currently Amended). The method of claim 17, wherein the second packing algorithm includes~~the steps of~~:

run-length coding of a plurality of zero coefficients; and

two-knob Hhuffman coding of a plurality of non-zero coefficients.

20 (Currently Amended). The method of claim 13, wherein the third packing algorithm includes ~~the steps of~~:

low-frequency differential datapacking of a plurality of coefficients on a row-wise fashion, including a DC coefficient.

21 (Currently Amended). A method for compressing image data[[,]] comprising the steps of:

encoding using a first packing algorithm for a first level of a transformation of the image data; and

encoding using a second packing algorithm for a second level of the transformation of the image data.

22 (Currently Amended). The method of claim 21, wherein the first packing algorithm includes ~~the step of~~:

adaptive run-length coding of a plurality of zero coefficients.

23 (Currently Amended). The method of claim 21, wherein the second packing algorithm includes ~~the steps of~~:

run-length coding of a plurality of zero coefficients; and

two-knob Hhuffman coding of a plurality of non-zero

coefficients.

24 (Currently Amended). The method of claim 21, further comprising the step of encoding using a third packing algorithm for a third level of the transformation of the image data.

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25 (Currently Amended). The method of claim 24, wherein the third packing algorithm includes ~~the steps of~~:

low-frequency differential datapacking of a plurality of coefficients on a row-wise fashion, including a DC coefficient.